

## A Clever Australian and his Foundry - Coxon of Nurmukah

In these times of mass imports of engineering and agricultural equipment, we are in danger of losing sight of the time when this nation was largely self-sufficient through local production. Not only did Australian firms make items that were suitable for local use, some were also successfully exported. How the wheel has turned, many would say in the wrong direction!

This is the story of Coxon's Foundry that operated in Nurmukah, Victoria from 1894 until 1934. It is also a story that could probably be applied in any Australian regional area where the local foundry was often the cornerstone of progress.

Edward Coxon, one of nine children, was born in Ballarat in 1866 and moved with his family to

Invergordon, near Nurmukah in North East Victoria in 1874. In the early 1890s Coxon gained employment at Furphy's Foundry in Shepparton as a 'Striker' at the rate of 10 shillings (\$1) a week. A Striker worked around a fire and with the aid of an assistant would hammer hot pieces of metal into the required shape, using anvils, swages and dies. The Striker, usually the younger of the two men, would be allocated the heavier hammer!

Over the next three years Coxon learnt all he could from Furphy about blacksmithing and foundry operation. In July 1894, in partnership with a Mr Gourley, he took over the Agricultural Department of House Brothers who had established a foundry in Nurmukah in 1882. Within a short time Coxon had not only bought out his partner but also the total business. He began with one fire doing general blacksmithing and horseshoeing, but progress was rapid. A wheelwright shop was added and the production of farm



A section of the Coxon Wheelright's shop. The caption in the corner states 'COXON'S ENGINEERING, COACHBUILD, GENERAL BLACKSMITH, IRON FOUNDRY ETC. WORKS NURMUKAH, VIC.' and the photographer is J. CHECK 1922

*Continued on page 2*

## Plaquing the Old Great North Road

It was a glorious Spring morning when the official party gathered on the pavement of the Old Great North Road on Saturday, 13 October, 2001. The occasion marked the culmination of months of negotiations and planning by the Newcastle Division Engineering Heritage Committee. Numerous guests had travelled from both north and south to the site near Wisemans Ferry on the Hawkesbury River to witness the unveiling. The 25th National Engineering Landmark plaque was unveiled by Her Excellency Professor Marie Bashir AC, Governor of New South Wales, accompanied by National Immediate Past President of the Institution, Mr Ian Pedersen.

The site was Devines Hill, a steep ascent of about 2km, just a part of the 264km of road originally built from Parramatta Road in Sydney to the Patrick Plains of the Hunter Valley. The location of the plaque is especially significant as this section of the work exhibits splendid examples of the superior engineering techniques of the time. This rugged country did not deter the resolve of the Surveyor-General of the late 1820s, Sir Thomas Mitchell and



Our intrepid Governor standing on one of the tall buttresses

*Continued on page 2*

**INSIDE** this edition

**See page 2 for details!**



## A Clever Australian and his Foundry Continued from page 1

drays, box wagons, buggies, gigs, jinkers, cream carts and sprung carts commenced. He was also an innovator and developed a wagon where the front wheels could turn under the body, greatly improving the turning circle.

Later products included ploughs, single and double disc harrows, scarifiers, spike rollers, water carts, scoops, the Pep-O-Day harvester, wool presses and wool tables, and hand tools to meet the agricultural needs of the region.

The foundry was well equipped with a boiler and steam engine to drive the belts coupled to drilling machines, lathes, band and circular saws, planing machines, spoke tenon and wood boring machines, and nut and bolt screwing machines. This was a self-sufficient secondary industry set up on a production line basis comprising separate shops for pattern making, forging, casting, moulding, production, manufacture, wood mill, wheelwright, blacksmith, farrier and painting. Up to 40 local men were employed, supported by young boys, working from 6am to 6pm with 30 minutes for a meal break. The son of H.V. McKay also spent time at Coxon's Foundry.

To publicise his products Coxon would hire a traction engine to tow trailers carrying his products to the various regional shows, well up into the Riverina. The team could be away for up to a month and would just return with the traction engine and orders, having sold the wagons and load at the various shows.

Duplication or what we would now refer to as patent infringement did occur. The common example was where a smaller manufacturer would reproduce an item made by a larger manufacturer. Both H.V. McKay and Furphy took Edward Coxon to court. In the Furphy case the dispute was over the water cart; items now keenly sought by collectors. Coxon proved that his water cart wasn't the same as a Furphy, as it had a square filling lid and Furphy had a round lid. That was the end of the court case.

The introduction of the motor car and tractor, coupled with the Depression made it difficult for regional manufacturing businesses such as Coxon's. However, Coxon was ahead of his times and saw the future in motor cars. The foundry virtually closed overnight and he built a garage alongside. He was a pioneer in the motor trade and was one of the first Ford dealers in country Victoria. Throughout his lifetime Coxon was an active supporter of his local community.

Edward Coxon died in 1946, and so passed a man who was an innovator, inventor and achiever who did much to support the engineering and agricultural community. Such was the standard of his products that many survive to this day with some still in regular use. This is a fitting tribute to a fine Australian.

Gary Barker



*Coxon's grandson, E.J. Lee at Berrigan January 2001 with a Coxon watercart and kero tin filler*



*The plaque being unveiled by the Governor and NIPP Ian Pedersen*

## Plaquing the Old Great North Road Continued from page 1

that of his assistant, Lieutenant Percy Simpson who was an engineer of great skill. His management of the convict workforce was nothing short of inspiring. A more detailed account of the

engineering involved in the building of this road by convict chain gangs, written by our Newcastle Division Engineering Heritage chairman, Alastair Peddie, was published in EHA No. 9, the October 1999 issue.

Devines Hill is located in the Dharug National Park, so the ceremony was commenced with a welcome from Bob Conroy, Director Central of the National Parks and Wildlife Service (NPWS). Peter Cockbain, President of the Newcastle Division, described the Plaquing Programme and related some amusing incidents in his personal quest to conserve our Engineering Heritage. A comprehensive account of the history of the Old Great North Road was given by Lorraine Banks of the Convict Trail Project Group. This notably mentioned the hardship and devotion of the captive convicts, some returning to work there after being freed. More on the work of the Convict Trail Project can be obtained from their website at: [www.convicttrail.org](http://www.convicttrail.org).

After the unveiling by the Governor and Ian Pedersen, the party moved further up the hill allowing casual inspection of the impressive stone walling, buttresses, culverts, drains and quarried faces which were examples of engineering excellence well ahead of their time. The event closed with refreshments provided by NPWS. In the evening, an excellent video account of the ceremony was featured in the ABC Television News.

Ron Goodhew  
(Photos courtesy of Michael Clarke)

## INSIDE this edition

A Clever Australian and his Foundry -	
Coxon of Nurmukah .....	1
Plaquing the Old Great North Road .....	1
Abt Railway Bridges Reconstruction .....	3
EHA Bulletin Snippets .....	4
Book Reviews .....	4
Copper Smelting at Mt Lyell, Tasmania .....	5
Trees of Canberra Avenue Marked .....	5
Prestigious Award for WA Panel .....	5
The East West Telegraph and Whyalla District Engineering Heritage .....	6
Sir John Butters - A Peoplescape Person .....	7
Heritage Website .....	7
Eleventh National Conference on Engineering Heritage ..	8

# Abt Railway Bridges Reconstruction



*The Iron Bridge at Teepookana showing the replaced top cross trusses*

## Changes to Committee of EHA

At the meeting of the EHA committee on 11 October 2001, Glenn Rigden from Sydney Division was welcomed as he replaced Ian Arthur as that division's representative

This newsletter is published by Engineering Heritage Australia, a Special Interest Group of the Institution of Engineers, Australia. Please contact us on (02) 6270 6530, fax (02) 6273 2358 or visit our website at [www.ieaust.org.au](http://www.ieaust.org.au)

Editor Bill Jordan.  
Contributions for the next edition gratefully accepted - email: [bill.jordan@hunterlink.net.au](mailto:bill.jordan@hunterlink.net.au)

As reported in EHA No. 11, Tasmania's major Centenary of Federation project is the reconstruction of the Abt Railway between Queenstown and Regatta Point, Strahan on Tasmania's rugged West Coast. The railway is just over 35 km long and follows the original route built in the late 1890s by the Mount Lyell Mining and Railway Co. Ltd for hauling ore from the mines to the port of Teepookana and later to Strahan. Work is now nearing completion.

Although it was mainly a freight railway, it carried limited passengers, with the annual Mt Lyell Picnic Days being legendary as the social highlight of the year. Even before the line was closed there were calls for maintaining it as a tourist railway.

The principal siteworks, covering the majority of track works and replacement or restoration of 40 bridges, was a Design and Construct contract carried out by Hazell Bros with Johnstone McGee & Gandy responsible for design.

It was recognised that to build a heritage railway would be prohibitively expensive. Therefore only selected bridges were required to reflect the original construction, these being:

- the restoration of Halls Creek Bridge,
- the restoration of the Iron Bridge at Teepookana, and
- the building of four new bridges in timber to heritage style.

The disused Henty River Railway Bridge was also refurbished, with new transoms and stringers matched to the original wrought iron girders.

Metallurgical tests revealed that even the flanges and webs of the girders were not readily welded, so that bolted connections were adopted.

Metallurgy tests on the Iron Bridge revealed that the members were readily welded, and this saved replacing thousands of rivets. Some of the original members had corroded so badly that they were see-through, and safety nets were hung above the deck to protect bridge users from falling debris. The top cross trusses could have been replaced by simply welding a 360UB45 over the top of the main trusses. However, after consultation with the Tasmanian Heritage Council, trusses similar to the originals were fabricated and fitted (although the painter was not happy trying to paint inside a 10mm gap that resulted from the truss fabrication). The original timber piles that supported one abutment were trimmed below low water level and a new concrete pile cap was constructed while the bridge was temporarily jacked up on its outer-most piles. These piles were incorporated into the pile cap after the bridge was lowered onto the new pile cap and columns.

The timber heritage-style bridges provided both designers and constructors with the greatest challenge. Timber members are very heavy, and construction access was generally limited to a 3m wide bench due to the steep side slopes of the King River valley. Modern standards also specify loading combinations and safety factors which the original bridges would clearly not withstand.

As the timber for the bridges was green, innovative joint designs were developed which allowed unrestrained cross grain shrinkage while still maintaining full strength. The original drawings were available and these were used as a template for the trestle geometry, with minor changes to member sizes to suit the structural requirements. To more closely reflect the original joint details, "dummy bolts" comprising a square washer with a short length of threaded stud and nut were nailed to the outside of the joints.

As the reconstructed route generally followed the abandoned one, the remains of the existing timber bridges had to be demolished to allow construction of the new bridges. At one bridge it was decided to leave the existing bridge in place and build the new bridge on a diversion alongside, to allow passenger viewing of the old bridge. The new bridge at "Quarter Mile" was also built upstream of the original to preserve the remains of the original structure for viewing by passengers.

Trains have been operating from Queenstown since October 2000, with operations expanding up the rack section to the highest point of the line at Rinadeena since January. Construction is nearing completion and operation along the whole route is expected before Christmas 2001.

Grant Atherton



*Timber heritage style bridge showing trestle geometry and member sizes*



# EHA Bulletin Snippets

EHA Chairman, Michael Clarke, has been publishing an e-mail bulletin to EHA members and other interested subscribers over the last 10 months. Some interesting snippets from the Bulletin not covered elsewhere include:

## Bulletin #16

### Engineering heritage email forum

*Engineering Heritage Australia* has established an online forum for members and other interested persons to exchange ideas and disseminate information on engineering heritage. The forum can be used to circulate technical developments, publicise events, and ask questions and tap the experience of others.

The address is:

[groups.yahoo.com/group/engineeringheritageaustralia](mailto:groups.yahoo.com/group/engineeringheritageaustralia).

The forum is subscriber-only, and membership is free. Each user is responsible and liable for any material that they post, and the forum must not be used for advertising.

To subscribe to the forum, email:

[engineeringheritageaustralia-subscribe@yahoogroups.com](mailto:engineeringheritageaustralia-subscribe@yahoogroups.com).

## Bulletin #15

### International Memory of the World register

UNESCO's International Memory of the World register was established in 1992 and now lists 48 collections from 26 countries.

Criteria for inclusion include material that has had a big influence on world history or reflects a period of big change in world affairs, is about a person who has made a crucial contribution to major developments in world history or culture or a place which has cultural, social and spiritual value that transcend a national culture.

The Australian Memory of the World committee is chaired by Jan Lyall.

## Book Reviews

The NSW Roads and Traffic Authority recently published *Vital Connections – A history of NSW roads from 1788*, by historian Rosemary Broomham. To quote from the back cover:

This book focuses on the role of roads in the history of New South Wales from the arrival of Europeans in 1788 to the Centenary of Federation in 2001, highlighting the part they have played in the State's social and economic development.

*Vital Connections* traces the remarkable achievements of road makers, engineers and bridge builders as they coped with the extremes of the New South Wales landscape – wide rivers, seemingly impassable mountain ranges, and rugged coastlines. The first paths between convict tents led ultimately to a cart track over the Blue Mountains, the construction of hundreds of bridges and the creation of a main roads system which by 1889 had reached all the boundaries of the colony and accessed remote communities untouched by rail. With the coming of the motor car the quality of the roads had to be upgraded until during the 1990s many motorways planned half a century earlier were finally completed.

The book is well illustrated with historic images and maps. It is published by Hale & Iremonger, 2001. ISBN 0 86806 703 2.

Michael Clarke

## Bulletin #11

### Memento – the newsletter of the National Archives

*Memento* is issued three times a year and can be viewed online on the NAA website at [www.naa.gov.au](http://www.naa.gov.au). Subscribers to an email service will be alerted when each new issue is posted on the site.

To subscribe (it is free), ring (02) 6212 3609, fax (02) 6212 3914 or email [mementosub@naa.gov.au](mailto:mementosub@naa.gov.au).

Print issues are still available.

## Ivor Pinkerton

The May *Civil Engineers Australia* included an obituary of Ivor Pinkerton who died at the age of 85. Ivor had a most distinguished career and when he retired from the Snowy Mountains Engineering Corporation in 1976 as Chief Engineer, Civil Design, he became an international consultant for hydroelectric and irrigation projects both in Australia and overseas.

Fortunately, through oral history, Ivor's voice will not be forgotten, as he was one of the 12 "Snowy engineers" interviewed under the Monaro Group's project conducted as part of the 50<sup>th</sup> Anniversary celebrations of the Snowy Mountains Scheme (see report in Issue 10 August 2000, of *Engineering Heritage Australia*).

## Bulletin #9

### Heritage Kerbstones

A plaque outside the butcher's shop in the historic town of Gulgong, in NSW announces:

This building became a butchery at the turn of the century. Note today that the original stone guttering of the street still shows depressions worn by butchers sharpening knives and implements.

However, when Mudgee Shire Council started a street beautification program, the stones were removed, because, said the council, they were too worn!

## Bulletin #8

### Threats to the World's Cultural Heritage

The wide range of threats to the world's cultural heritage: natural disasters, illegal excavation and looting, ethnic confrontations, campaigns against culture and mass global tourism is shown *Heritage@Risk2000* by the International Council on Monuments and Sites (ICOMOS). The full report is available at [www.icomos.org/risk](http://www.icomos.org/risk)

## Bulletin #7

### Preservation of Audio Materials

A collection of online resources relating to preservation of audio materials is now available on Conservation Online at <http://palimpsest.stanford.edu/bytopic/audio>.

## Bulletin #3

### Directory of Archives in Australia

(1998 Edition - ISBN 0 947219 12 9)

Reprints of the directory are available for sale at \$40.00 including postage within Australia. Send orders to [directory@asap.unimelb.edu.au](mailto:directory@asap.unimelb.edu.au). Processing will be completed on receipt of a cheque, money order or purchase order made out to "Australian Society of Archivists Inc." c/- Australian Science Archives Project, 203 Bouverie Street, Carlton VIC Australia 3053.

## Copper Smelting at Mt Lyell, Tasmania



*Mt Lyell Smelter with two furnaces in 1896, in its original forest setting*



*Mt Lyell Smelters with 11 furnaces in 1899, after bush fires, timber felling and sulphur dioxide emissions destroyed the vegetation*

James Philosopher Smith was a hardy farmer and prospector who spent two years digging gold in the early rush in Victoria. He decided to return to Tasmania as a farmer in the Forth district in 1853.

He spent a great deal of his life prospecting and in December 1871 he discovered the large deposits of tin oxide on the slopes of Mt Bischoff. The discovery of such an extensive deposit had a dramatic effect on the exploration for minerals in Tasmania. Prospectors working south from Burnie and then south of the Pieman River were rewarded by the discovery of many important mineral deposits, all of which were close to the coast.

Prospectors using the port of Macquarie Harbour discovered many ore bodies. The important gold-copper deposits on the slopes of Mt Lyell were found by Cornelious Lynch who exposed a reef in a trench he was digging. The reef was studded with gold. Thus the richest deposit in the copper field was found by accident. As a result of the discovery, 44 companies were floated to search for copper-gold.

During the copper boom, railway companies seemed glamorous and both Mt Lyell and North Mt Lyell commenced railway construction to Macquarie Harbour.

Both companies built smelters to treat their ore, Mt Lyell near the ore bodies and North Mt Lyell farther away at Crotty. Both smelters were unable to treat their respective ores. The smelting process at that time involved using the combustion of coal and coke to melt the ore in a reducing atmosphere. The North Mt Lyell ore was strong in silica and weak in iron, while Mt Lyell ore was strong in iron and weak in silica. Both smelters were failures. Both companies would have saved enormously by smelting their ore in the same furnace, but the North Mt Lyell Company refused Mt Lyell's offer of a merger. Their blunt refusal to merge probably cost them some £750,000 (\$1,500,000).

*Jack Symons*

## Trees of Canberra Avenue Marked

In 1925 Sydney paper merchant William Bremner Carmichael visited Canberra and was struck by the need for trees for the beautification of the national capital. He wrote letters to the Editors of major Australian newspapers urging societies and organisations to donate trees or avenues of trees for this purpose. The Institution of Engineers, Australia was one of the many organisations which responded, sponsoring some 96 trees.



*Planting a tree on the 75<sup>th</sup> anniversary of the original plantings*

On 2 August 1926, members of the Institution visited Canberra and planted trees in Manuka Circle, part of the now Canberra Avenue, symbolising the interest and role of engineers in the building of the capital and the nation.

As an act of celebration of the Centenary of Federation, Dr Martin Cole, President of the Institution, planted a tree and unveiled an Historic Engineering Marker plaque on the site, on the 75<sup>th</sup> anniversary of the original occasion, that is on 2 August 2001.

*Rob Breen*



*Martin Cole unveils the plaque in Canberra Avenue*

## Prestigious Award for W.A. Panel



*(Left to right) WA Heritage Council Chairman, Maurice Owen, Director Ian Baxter and Chairman of the WA IEAust Engineering Heritage Panel, Bruce James*

The Engineering Heritage Panel of the Institution of Engineers (WA Division) has won the prestigious Western Australian Heritage Award for 2000. The annual award recognizes outstanding achievements in heritage conservation.

At the Award presentation Heritage Council Director, Ian Baxter, said that the achievements of the Engineering Heritage Panel in recording and assisting to preserve significant engineering structures made them a worthy recipient of the award.

Achievements of the Panel recognized for the Award include the preparation of a five volume report entitled *Large Timber Structures in WA* and being involved in conserving and relocating one of the two 75-year old luffing cranes which were within five weeks of being sold for scrap metal.



# The East West Telegraph and Whyalla District Engineering Heritage

A National Engineering Landmark plaque for the East West telegraph was unveiled at Mount Laura Homestead, Whyalla on Saturday 25<sup>th</sup> August. The event was organised by the IEAust SA Division Heritage branch in collaboration with the Whyalla IEAust branch, the National Trust of SA and the City of Whyalla. The plaque was unveiled by National Vice President Peter Koukourou and presented to the representatives of the National Trust of SA, and the City of Whyalla. On Sunday 26<sup>th</sup> August the National Trust unveiled six interpretive plaques as part of Australia's Iron Heritage trail to commemorate the commissioning of the Hummock Hill - Iron Knob tramway on 28/8/1901, and Iron Knob as the birthplace of Australia's iron ore and steel industry.

The National Trust and Institution of Engineers Australia NEL plaques were mounted on fabricated pedestals manufactured from standard mild steel 610 UB and 150 PFC sections produced locally and donated by Onesteel Pty Ltd.

Although the telegraph did not pass through Whyalla (in fact the settlement of Hummock Hill was only established at the turn of the century and renamed Whyalla in 1914) the Mount Laura Homestead has a major telecommunications museum and provides a ready made interpretive centre for South Australian telegraphy.

The East-West telegraph was formed by constructing a line 2428 km long between Port Augusta and Albany to link with the existing telegraph systems in each Colony. The line from Albany to Perth had been completed in December 1872 while Port Augusta had been connected since August 1865. However, the South Australian Telegraph Department, under Charles Todd, had also decided to run an additional line from Adelaide to Port Augusta which included a new line of poles following the railway as far as Roseworthy. When completed the East-West telegraph formed a 3310 km line between Adelaide and Perth.

Because of the inevitable impact of Ohms Law, the 120 volt signal could only travel so far over what was essentially fencing wire – an average of about 250 km. In the absence of amplifiers, the signal had to be received by an operator and retransmitted in a repeater station. In South Australia, these were established at Port Lincoln, Streaky Bay, Smoky Bay and Fowlers Bay (a spur line to Cowell was added in 1885).

Each colony was responsible for its own construction. As there was no suitable timber in SA, galvanized wrought iron Oppenheimer poles like those used on the Overland Telegraph were imported from Germany. In Western Australia, jarrah poles were used, squared off so they wouldn't roll around in the little ships that had to land them along the

coast. Each State also used different telegraph codes. Western Australia used the Universal code (adopted by the Commonwealth after 1901) whilst South Australia used the Victorian (Australiana) code. The conventions of the day also required the telegraph station (which was actually about 12 km inside Western Australia) to be operated by both colonies as a border facility, with two separate station masters and two distinct staffs. The two telegraph operators sat opposite each other, separated by a partition. Each operator decoded incoming messages, wrote them out, and passed them through a partition for his opposite number to transmit.

Despite this cumbersome operation, the line opened up communication between the colonies and established a sound basis for Federation.

South Australia had always recognised that WA had more to gain from the construction of the line. Nevertheless, it willingly undertook its part of the construction. As Charles Todd put it "Most people regard the work as I do – as a national obligation which our geographical position compels us to fulfil"

There is not much of the existing fabric left of the line other than some repeater station buildings, including the border station at Eucla – now probably more known for the inundating sand than its crucial role as the interface between two independent Crown colonies, each with their own telegraph codes.



*A remaining Oppenheimer galvanized wrought iron pole*



*Kollengode Subramanian Ananthakrishnan, Chairman IEAust Whyalla Branch; His Worship John Smith, Mayor of the City of Whyalla; Peter Koukourou, National Vice President, IEAust; Nigel Ridgway, Chairman IEAust SA Division Engineering Heritage Branch with the mounted NEL plaque*

*Continued on page 8*



## Sir John Butters – A Peoplescape Person



**Figure maker Rob Breen with Sir John**

John Butters, the father of the Tasmania hydro electric power industry and first Commissioner of the Federal Capital Commission, has been honoured by the Heritage Panel of the Canberra Division of the Institution of Engineers.

Born in England in 1885, Butters graduated in electrical engineering and came to Australia in 1909 in the employ of Siemens Bros. The company was involved in the establishment of the first hydro-electric power facility in Tasmania and in 1911 Butters became the chief engineer and manager of the scheme. Later, when it became a State owned enterprise, John Butters continued in the role and was responsible for the early development of Tasmania's power industry.

In 1924 Butters was appointed Chief Commissioner of the Federal Capital Commission charged with the building of Canberra. He supervised construction of housing, sewers, roads, water supply, power, lighting, parks, sports facilities and public buildings. By 1927 the Provisional Parliament House had been completed and was officially opened in May of that year by the Duke of York. Butters was knighted for his achievements

John Butters was keenly interested in the professional status of engineers. He was the founding Chairman of the Tasmania and Canberra Divisions of the Institution of Engineers, Australia, its national President in 1927.28 and was actively involved in promoting engineering education

Peoplescape was the final official event of the year-long celebrations of the Centenary of Federation. It involved citizens, organisations and groups nominating their heroes for honouring as part of the activity. Nominators received life-size Peoplescape blank figures which they decorated for display on the lawns between Old and New Parliament Houses, Canberra from 25 November. The John Butters figure was also displayed at the 11<sup>th</sup> National Conference on Engineering Heritage held at Old Parliament House from 8 to 10 October.

Rob Breen

---

## Heritage Websites

Michael Clarke has provided a list of websites which may be useful to readers:

### **Searching the Register of the National Estate**

To search the Register of the National Estate (RNE) - and all the State Registers - go to the Australian Heritage Directory at [www.heritage.gov.au](http://www.heritage.gov.au)

It includes links to all the State heritage registers and an option called the Australian Heritage Places Inventory.

### **The Association for Preservation Technology International**

[APT] is dedicated to "advancing the application of technology to the conservation of the built environment." Its membership includes architects, conservators, consultants, contractors, craftspersons, curators, developers, educators, engineers, historians, landscape architects, managers, planners, preservationists, technicians, and tradespeople. They welcome anyone involved in the systematic application of the knowledge of methods and materials to the conservation of buildings, districts and artefacts. Their website is at <http://www.apti.org/>

**The Australian Mining History** has a very good list of literature. Go to <http://www.ex.ac.uk/~RBurt/MinHistNet/welcome.html#ToC>

### **Archaeology World**

This Australian web site provides a range of information and resources on stone artefacts, Australian archaeology, Pacific archaeology and unconventional archaeology. There are also online articles on archaeology news, photographic resources and

links to other essential web sites. Go to site - [http://mri11.online.ozemail.net/mri?page\\_id=5&alias=arcworld](http://mri11.online.ozemail.net/mri?page_id=5&alias=arcworld)  
Go to SciTech archives - [http://mri11.online.ozemail.net/mri?page\\_id=5&alias=ScitechArchive](http://mri11.online.ozemail.net/mri?page_id=5&alias=ScitechArchive)

### **Memento – newsletter of the National Archives**

Memento is issued three times a year and can now be viewed online on the NAA website at [www.naa.gov.au](http://www.naa.gov.au). You can also subscribe to an email service which will alert you when each new issue is posted on the site.

### **Picture Australia - Photos at Your Fingertips**

PictureAustralia at [www.pictureaustralia.org](http://www.pictureaustralia.org) offers a single point of access to some of Australia's largest pictorial collections, including that of the National Archives. The site, which is hosted by the National Library also contains images from the Australian War Memorial, University of Queensland Library, National Library, and the State Libraries of New South Wales, Tasmania and Victoria.

### **The Australian Academy of Technological Sciences and Engineering**

The web site of The Australian Academy of Technological Sciences and Engineering (ATSE) is at [www.atse.org.au](http://www.atse.org.au)

Amongst other things, ATSE produces many free technical publications such as articles, papers special reports, submissions to Government symposia and seminar proceedings and policy statements. It includes an interesting book *Technology in Australia 1788-1988*. From this biographical entries can be accessed under "Bright Sparcs".

# Eleventh National Conference on Engineering Heritage

Canberra, 8 – 10 October 2001

The 11<sup>th</sup> National Engineering Heritage Conference was held in Old Parliament House, Canberra. It was attended by over 100 delegates, including a number on tour with the Newcomen Society (UK), and was a resounding success, as was the pre-conference Tour.

There were 39 well presented papers and the conference was most professionally organized and conducted by the Canberra Engineering Heritage Panel.

For most of the Newcomen members, the conference was the culmination of a four-week Australian tour. Their tour included historic engineering sites in Western Australia, South Australia, Victoria and New South Wales, where they were hosted and guided by members of engineering heritage groups. After the Conference, some went on to North Queensland to see the Barrier Reef and to experience the Kuranda railway, before returning home.

## Papers presented were:

- Groovy Aerodynamics in Pre-European Australia  
*Ray Nelson*
- The Inadequate Impact of Federation on the Australian Land Transport System  
*Max Lay*
- A Water Supply Scheme and Politics of the 1830s  
*Gary Barker*
- The Royal Mint, Sydney 1853-1926  
*Michael Bogle*
- Some Impacts of Immigration on Australia's Engineering Heritage  
*Alex Marsden*
- Bridging Adelaide's River Torrens: Pre-and Post - Federation Technologies  
*Bill Stacy & Richard Venus*
- Foundries, Federation & Free Trade  
*Matthew Churchward*
- South Australian Pre-federation - Engineering a new technological society  
*Ian Schomburgk*
- Georges Head Beehive Fortification Sydney Harbour: Structure and Materials Investigations  
*David Moorehead & Anne Cummins*
- Municipality of Hunters Hill, 19<sup>th</sup> Century Maritime Heritage: Problems in managing and accounting for heritage listed items  
*Don Cottey*

- Fortification, Federation and a Single Shot in Anger: Green Hill Fort, Thursday Island  
*Geoff Ginn & Gordon Grimwade*
- Revitalising Wallangarra Interchange Railway Station  
*Greg Hallam & Tom Knobel*
- The Golden Pipeline  
*Godfrey Lowe*
- The Centenary of Federation Plaquing Programme of EHA  
*Robin Black*
- Eight Heritage Dams in Tasmania and Some Federal/State Issues  
*Bruce Cole*
- Theory, Practice and Engineering Heritage in Australia and New Zealand  
*Peter Lowe*
- Southern Highlands Canberra Connection: Federation and Foundations  
*Greg & Leonie Knapman*
- Building and Conservation of Canberra, the National Capital  
*Sandy Blair & Susan Bell*
- Eucalyptus Deanel: Some Aspects of Railway Engineering Before and After the Federation of the Australian States  
*Keith Smith*
- Roads, Bridges and Federation  
*Dick van der Molen & Colleen Lazenby*
- Australian Defence Forces: the defence of Port Phillip Heads 1859-1945  
*James Ferguson*
- Monash, Anderson, transport and communication 1894-1914  
*Geoff Taplin & Alan Holgate*
- Engineering a Nation: development of telephone telegraph and data facilities in Australia in the 20<sup>th</sup> Century  
*Jim McCarthy*
- Linking the Nation - The Victoria-Tasmania Submarine Telephone Cable 1936  
*Ian Atkinson*
- Arltunga: arid land gold mining hope and disaster at Federation  
*Neville Leybourne-Ward*
- The Development of Kalgoorlie as the International Centre for Innovation in Gold Metallurgy 1900-1907  
*Richard Hartley*
- WA Government Stamp Batteries 1898 to 1987  
*Rod Sheppard*
- Electricity and Water Supply: ActewAGL Moving from a Local to a National (and International) Focus  
*Paul Perkins*
- The Federal Government's Role in Manufacturing and Skill Transfer to Private Industry: case studies from the Small Arms Factory, Lithgow, the Royal Mint, Melbourne Branch and the Royal Australian Mint  
*Graham Conran*
- An Early Electric Passenger Lift  
*Deane Kemp*
- Preserving Engineering Heritage of the Newcastle Steelworks  
*John Chambers*
- The Post War Project in WA: A discussion about two case studies into Australian engineering development during the second half of the 20<sup>th</sup> C.  
*Leigh Edmonds*
- Vincent Rivulet Bridge Tasmania: A small bridge with an interesting history  
*Ivan Gaggin*
- Canning Dam Remedial Works 1999-2001  
*Tony Moulds*
- The Contribution of Sir John Monash to 20<sup>th</sup> Century Engineering in Australia  
*Alan Holgate & Geoff Taplin*
- The Snowy Mountains Scheme - More than Engineering Heritage  
*Ken Lister*
- The Unseen Heritage: 100 years of engineering drawings and records  
*Ken Wyatt & Margaret Chambers*
- Some National Presidents of IEAust.  
*Bruce Sinclair*
- New Commonwealth Heritage Legislation, an Update  
*Bruce Leaver*

## The East West Telegraph and Whyalla District Engineering Heritage

Continued from page 6

The EW telegraph was deemed worthy of the Institution's highest award, the National Engineering Landmark. The plaque reads;

### The East - West Telegraph Adelaide to Perth

*The East-West telegraph linked Western Australia to the other Australian colonies and, through the Overland Telegraph, to the world. The 2428 kilometre single iron wire line which completed the link had repeater stations at Port Lincoln, Streaky Bay, Smoky Bay, Fowlers Bay, Eyre, Israelite Bay, Esperance and Bremer Bay. The first poles were erected in Albany on 1 January 1875 and Port Augusta on 15 August 1875. When the line was joined at the border station on 8 December 1877, the first message was sent to Perth: "Saturday, 7 p.m. Eucla line opened. Hurrah!" Richard Randall Knuckey supervised the South Australian section which was completed on 15 July 1877. Other commemorative plaques may be found at Albany and Esperance.*

*Dedicated by  
The Institution of Engineers, Australia, City of Whyalla and National Trust of South Australia  
2001 - The Centenary of Federation*

*Nigel Ridgway*